

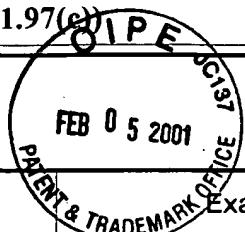
GAU2173

**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**  
 (Under 37 CFR 1.97(b) or 1.97(e))

Docket No.

1074  
RECEIVED

In Re Application Of: John Oliensis

FEB - 7 2001  
Technology Center  
Group A11/112 2100Serial No.  
09/652,820Filing Date  
August 31, 2000Examiner  
Unassigned

2173

Title: **DIRECT MULTI-FRAME STRUCTURE FOR HAND-HELD CAMERAS**

RECEIVED

Address to:  
 Assistant Commissioner for Patents  
 Washington, D.C. 20231

*[Handwritten signatures and initials: H, DE, 6-27-01]*  
 JUN 26 2001  
 Technology Center 2600

**37 CFR 1.97(b)**

1.  The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application; within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; or before the mailing date of a first Office Action on the merits, whichever event occurs last.

**37 CFR 1.97(c)**

2.  The Information Disclosure Statement submitted herewith is being filed after three months of the filing of a national application, or the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; or after the mailing date of a first Office Action on the merits, whichever occurred last but before the mailing date of either:

1. a Final Action under 37 CFR 1.113, or
2. a Notice of Allowance under 37 CFR 1.311,

whichever occurs first.

Also submitted herewith is:

a certification as specified in 37 CFR 1.97(e);

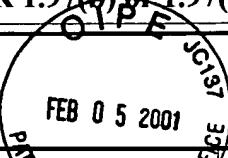
**OR**

the fee set forth in 37 CFR 1.17(p) for submission of an Information Disclosure Statement under 37 CFR 1.97(c).

TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT  
(Under 37 CFR 1.97(b) or 1.97(c))

Docket No.  
13725

In Re Application Of: John Oliensis



Serial No.  
09/652,820

Filing Date  
August 31, 2000

Examiner  
Unassigned

Group Art Unit  
2173

Title: DIRECT MULTI-FRAME STRUCTURE FOR HAND-HELD CAMERAS

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Payment of Fee

(Only complete if Applicant elects to pay the fee set forth in 37 CFR 1.17(p))

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The Assistant Commissioner is hereby authorized to charge and credit Deposit Account No. 19-1013/SSMP as described below. A duplicate copy of this sheet is enclosed.

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I certify that this document and fee is being deposited on February 2, 2001 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

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Michelle Mustafa

Typed or Printed Name of Person Mailing Correspondence

\*This certificate may only be used if paying by deposit account.

Signature

Paul J. Esatto, Jr.  
Registration No. 30,749

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Dated: February 2, 2001

PJE:dra

CC:



**THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicant:** John Oliensis

**Docket:**

13725

*Technology Center 2100*

**Serial No.:** 09/652,820

**Group Art Unit:** 2173

**Filed:** August 31, 2000

**Dated:**

February 2, 2001

**For:** DIRECT MULTI-FRAME STRUCTURE  
FOR HAND-HELD CAMERAS

Assistant Commissioner for Patents  
Washington, D.C. 20231

**INFORMATION DISCLOSURE STATEMENT**

Sir:

In accordance with 37 C.F.R. §§ 1.97 and 1.98, it is requested that the following references, which are also listed on the attached Form PTO-1449, be made of record in the above-identified case.

1. Bergen et al., "Hierarchical Model-Based Motion Estimation," *ECCV*, pages 237-252, 1992;
2. Barron et al., "Systems and Experiment, Performance of Optical Flow Techniques," *International Journal of Computer Vision*, pages 43-47, 1994;

**CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8(a)**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on February 2, 2001.

Dated: February 2, 2001

*Michelle Mustafa*

3. Brodsky et al., “Self-Calibration from Image Derivatives,” *ICCV*, pages 83-89, 1998;
4. Burt et al., “The Laplacian Pyramid as a Compact Image Code,” *IEEE Transactions on Communications*, Vol. Com. 2, No. 4, pages 532-540, 1983;
5. Fermuller, “Passive Navigation as a Pattern Recognition Problem,” *International Journal of Computer Vision*, pages 147-158, 1995;
6. Fermuller et al., “Direct Perception of Three-Dimensional Motion from Patterns of Visual Motion,” *Science*, Vol. 270, pages 1973-1976, 1995;
7. Hanna, “Direct multi-resolution estimation of ego-motion and structure from motion,” *IEEE Motion Workshop*, pages 156-162, 1991;
8. Horn et al., “Determining Optical Flow,” *Artificial Intelligence*, pages 185-203, 1981;
9. Irani, “Multi-Frame Optical Flow Estimation Using Subspace Constraints,” *IEEE*, pages 626-633, 1999;
10. Irani et al., “Direct Recovery of Planar-Parallax from Multiple Frames,” *Vision Algorithms – Pre-Proceedings*, pages 1-8, 1999;
11. Irani et al., “From Reference Frames to Reference Planes: Multi-view Parallax Geometry and Applications,” *ECCV*, pages 829-845, 1998;
12. Irani et al., “Recovery of Ego-Motion Using Region Alignment,” *IEEE*, pages 268-272, 1997;
13. Jepson et al., “Linear subspace methods for recovering translational direction,” in *Spatial Vision in Humans and Robots*, pages 39-62, 1993;
14. Kumar et al., “Direct recovery of shape from multiple views: a parallax based approach,” *IEEE*, pages 685-688, 1994;
15. Lucas et al., “An Iterative Image Registration Technique with an Application to Stereo Vision,” *Proceedings of the Seventh International Joint Conference on Artificial Intelligence*, Vol. II, pages 674-679, 1981;

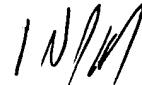
16. Mandelbaum et al., “Correlation-Based Estimation of Ego-motion and Structure from Motion and Stereo,” *IEEE*, pages 544-550, 1999;
17. Oliensis et al., “Structure from Motion using Points, Lines, and Intensities,” *IEEE*, pages 599-605, 2000;
18. Oliensis et al., “Fast Algorithms for Projective Multi-Frame Structure from Motion,” *IEEE*, pages 536-543, 1999;
19. Oliensis, “A Multi-Frame Structure-from-Motion Algorithm under Perspective Projection,” *international Journal of Computer Vision*, pages 163-192, 1999;
20. Oliensis, “Multiframe Structure from Motion in Perspective,” *IEEE*, pages 77-84, 1995;
21. Oliensis, “Structure from Linear or Planar Motions,” *IEEE*, pages 335-342, 1996;
22. Oliensis, “A Linear Solution for Multiframe Structure from Motion,” *IUW*, pages 1225-1231, 1994;
23. Oliensis, “Rigorous Bounds for Two-Frame Structure from Motion,” *ECCV*, pages 184-195, 1995;
24. Sawhney, “3D Geometry From Planar Parallax,” *IEEE*, pages 929-934, 1994;
25. Shashua et al., “Relative Affine Structure: Theory and Application to 3D Reconstruction From Perspective Views,” *IEEE*, pages 483-489, 1994;
26. Stein et al., “Model-based Brightness Constraints: on Direct Estimation of Structure and Motion,” *IEEE*, pages 400-406, 1997;
27. Sturm et al., “A Factorization Based Algorithm for Multi-Image Projective Structure and Motion,” *ECCV*, pages 709-722, 1996;
28. Zelnik-Manor et al., “Multi-Frame Alignment of Planes,” *IEEE*, pages 151-156, 1999;
29. Torr, “Geometric Motion Segmentation and Model Selection,” *Phil. Trans. R. Soc. London A*, pages 1-17, 1996;

30. Torr, "Model Selection for Two View Geometry: A Review," Microsoft Research paper;
31. Zelnik-Manor et al., "Multi-View Subspace Constraints on Homographies," *IEEE*, 1999;
32. Kumar et al., "Shape recovery from multiple views: a parallax based approach," David Sarnoff Research Center, pages 947-955;
33. Stein et al., "Model-based Brightness Constraints: on Direct Estimation of Structure and Motion."
34. Hartley, "A linear method for reconstruction from lines and points," GE-Corporate Research and Development;
35. Hanna et al., "Combining Stereo and Motion Analysis for Direct Estimation of Scene Structure," *IEEE*, pages 357-365, 1993;
36. Cohen, "Dense Recovery of Planar-Parallax from Multiple Frames," Thesis for the M.Sc. Degree of Meir Cohen, Weizmann Institute of Science, 1999;
37. Lucas et al., "Optical Navigation by the Method of Differences," Computer Science Department of Carnegie-Mellon University; and
38. Fermuller et al., "Global rigidity constraints in image displacement fields," *IEEE*, pages 245-250, 1995.

Applicant is submitting copies of the above-cited references.

Inasmuch as this Information Disclosure Statement is being submitted in accordance with the schedule set out in 37 C.F.R. §1.97(b), no petition, certification or fee is required. Consideration of this Information Disclosure Statement is respectfully requested.

Respectfully submitted,



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